

Mobil Oil Corporation

SFUND RECORDS CTR

0639-02433

ENVIRONMENTAL HEALTH

AND SAFETY DEPARTMENT

SUPERFUND RESPONSE GROUP

P.O. BOX 1039

PRINCETON, NEW JERSEY 08543-1039

**CERTIFIED MAIL**

**RETURN RECEIPT REQUESTED**

27 February 1992 AR2705

**DEL AMO SITE**

**104(e) RESPONSE**

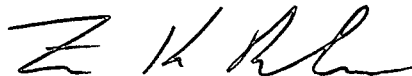
T. Dunkelman  
U.S. Environmental Protection Agency  
Mail Stop H-7-1  
75 Hawthorne Street  
San Francisco, California 94105

Dear Mr. Dunkelman:

Enclosed is Mobil Oil Corporation's (Mobil) reply to the USEPA's 22 January 1992 information request. The deadline extension until 28 February 1992, is appreciated.

Please address all future Del Amo Site correspondence to my attention at the above address. I can also be reached by phone (609-951-5045) or fax (5040).

Very truly yours,



Zane K. Bolen

Superfund Response Coordinator

delamo6.doc

attachments

cc: Ms. Jeannie Cervera, Esq.  
Office of Regional Counsel, USEPA IX  
w/o drawings

**Mobil Corporation's  
Response to USEPA's Request  
for Information Under 42 U.S.C. §9604 (e)  
for the Del Amo Site  
Los Angeles, California**

- 1.a. Within the EPA requested one mile information radius, Mobil has operated at least 20 pipelines as illustrated in Drawing E-1235-C and described in Table 1. Due to the volume of material, Mr. T. Dunkelman agreed by telephone on 13 February 1992 to limit the specific inquiry to pipelines within one block of the site with the understanding that the EPA may require additional information in the future. Table 2 with associated alignment sheets provide specific details of the pipeline routes near the site. While Mobil believes that the alignment sheets are accurate; errors, omissions and field changes by others may be found when comparing alignment sheets with actual field conditions.
- 1.b. See Table 2 for pipeline sizes near the site.
- 1.c. See Table 2 for initial pipeline installation date. Many of the older pipelines have been repaired, replaced, cut and capped, rerouted, and abandoned since installation. Only pipelines M-131, M-145, and M-146 are active near the site. The remaining pipelines in Table 2 were sold or abandoned prior to the mid 1970's. The abandoned pipelines were purged with either nitrogen or water before abandonment.
- 1.d. The material transported through each pipeline near the site is listed in Table 2. The three active pipelines transported on average per day in 1991 the following quantities:

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1.d. continued

<u>PIPELINE</u>	<u>MATERIAL</u>	<u>1991 AVG. DAILY (BBLs)</u>
M-131	15 - 25 API Gravity Crude	9,000
M-145	Gasoline Diesel	78,750 3,100
M-146	15 - 30 API Gravity Crude	56,000

Other than brief inactive periods for maintenance or operational reasons, these pipelines have been operated on a regular basis since installation. Since the audit of volumes shipped with dates for each pipeline is voluminous and we have no record of any pipeline leaks near the Del Amo site (see response to Question 2.a. through e.), we have not included this information in the response. However, the data is available upon request back to the late 1960's.

1.e These pipelines were designed and constructed meeting regulations and other industry standards commensurate with installation date. The three active pipelines, M-131, M-145 and M-146 are welded steel pipelines meeting D.O.T. regulations. They are operated and maintained in accordance with the California Pipeline Safety Act (CPSA) regulations for intrastate pipelines.

1.f. The date and parameters of the last hydrostatic test on the active pipelines are listed in Table 2 and a summary of the test results are attached. From the early 1970's to the enactment of CPSA in 1984, all pipelines were tested annually in accordance with city franchise requirements. CPSA has a 5 year testing cycle.

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1.f. continued

Prior to the early 1970's, hydrostatic testing was not conducted as part of a periodic inspection program.

These tests tested the pipelines for pressures much in excess of normal operating pressure; no leaks were detected. Pipeline M-145 (product line) was also internally inspected in 1989 using a "smart pig" and was found to be in excellent condition.

Since no leaks (see response to Question 2.a. through e.) were found near the site, test reports (which are voluminous) have not been included, but are available upon request.

1.g. All pipelines are intrastate.

1.h. No other parties have leased or otherwise used the pipelines during Mobil ownership. Records for pipelines sold by Mobil to other parties were transferred with ownership.

2.a. through e.

All leak locations discovered in the records search are illustrated in the attached Drawing E-1235-C and a brief description of location, material lost and quantity are listed in Table 3. No leak reports are in the limited site area defined in 1.a.; therefore additional details have not been included but can be provided upon request.

3. See response to 2.a. through e.

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4. Critical pressures, flow rates, temperatures and volumes on the three active pipelines near the site (M-131, M-145 and M-146) are remotely monitored. Readings are updated every 5 to 10 seconds, 24-hour a day, using a Supervisory Control and Data Acquisition (SCADA) system. A pressure variance of 25psi; or volume deviations of 15 barrels in 5 min., 100 barrels per hr. or 300 barrels per day, results in an alarm. Any abnormal data is analyzed and the appropriate field personnel dispatched to investigate. A leak which did not cause an alarm could be detected by other means such as line walkers/riders, periodic hydrostatic testing and shut down devices located at pump stations.

Small leaks could be undetected in hydrostatic testing because CPSA §51014 allows a 10 gallon per hour line loss at a pressure of at least 125 percent greater than pipeline working pressure. (This line loss allowance is provided to more reflect temperature measurement inaccuracies affecting volumetric changes, rather than as an indication of leakage. For example, the latest hydrostatic tests (attached) on the three active pipelines (M-131, M-145, and M-146) bled off water to hold the pipeline at a constant pressure due to slight temperature changes.)

Since the pipelines operate at a much lower pressure than when tested, any leak would be much less than the worst case allowable under CPSA §51014 of 10 gallons per hour.

The leak detection capabilities have evolved significantly over the years. Prior to the 1970's, pipelines were monitored primarily on a field basis by means of line walkers/riders, daily line balances and automatic shutdown devices. Today, SCADA monitoring, supplemented by field monitoring, makes extended undetected leaks unlikely.

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5. The SCADA system and hydrostatic testing monitors the end points of the pipeline, which are a number of miles apart, depending on the pipeline. If a leak is detected, hydrostatic testing can be used on shorter pipeline sections that can be isolated by inline valves.
6. We are not aware of leaks near the site from pipelines owned or operated by other companies.
7. Our records indicate that M-42 was sold to Douglas Oil Company in August 1974, and M-136 sold to Dow Chemical on 1 June 1973. The records for these pipelines were transferred with ownership.

Table 1 - Response to Question 1.a.

Mobil Pipeline Routes Within One Mile Radius of Del Amo Site			
Mobil Pipeline	Direction	Street or Location	Comments
2 - 8" Amine		Mobil Torrance Refinery	
	East	30ft Mobil Right of Way	
	South	Normandie Ave.	
	East	Del Amo Blvd.	Pipeline cut, capped and removed between New Hampshire Ave. & Vermont Ave.
			Pipeline cut and capped Vermont Ave. and Hamilton St.
	North	Main St.	
	East	100ft Water & Power Easement	Pipeline E of Main St. sold to Shell Oil Company 1 January 1974
M-146		Mobil Torrance Refinery	
	East	30ft Mobil Right of Way	
	South	Normandie Ave.	
	East	Del Amo Blvd.	Pipeline W of Vermont Ave. is 85ft N of street centerline - 59ft east of Vermont Ave.
	South	Figueroa St.	
M-145		Mobil Torrance Refinery	
	East	30ft Mobil Right of Way	
	South	Normandie Ave.	
	East	Del Amo Blvd.	Pipeline W of Vermont Ave. is 83ft N of street centerline - 55ft east of Vermont Ave.
	North	Main St.	
M-136		100ft Water & Power Easement	
		Mobil Torrance Refinery	Pipeline sold to Dow Chemical 1 June 1973
	East	30ft Mobil Right of Way	
	South	Normandie Ave.	
	East	Del Amo Blvd.	
	North	Main St.	

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Table 1 - Response to Question 1.a.

Mobil Pipeline Routes Within One Mile Radius of Del Amo Site			
Mobil Pipeline	Direction	Street or Location	Comments
M-44		Mobil Torrance Refinery	
	East	30ft Mobil Right of Way	
	South	Normandie Ave.	
	East	Del Amo Blvd.	
	South	Vermont Ave.	Pipeline cut, capped and removed in several locations S of Del Amo Blvd.
M-131		Mobil Torrance Refinery	
	East	30ft Mobil Right of Way	
	South	Normandie Ave.	
	East	204th St.	
	South	New Hampshire Ave.	
	East	Baron St.	
G-95		Mobil Torrance Refinery	
	East	30ft Mobil Right of Way	Pipeline cut and capped near Normandie Ave.
	South	Normandie Ave.	Pipeline cut and capped near Del Amo Blvd.
	East	Del Amo Blvd.	Pipeline cut, capped and removed from New Hampshire Ave. to Vermont Ave.
	South	Main St.	Pipeline cut and capped between Vermont Ave. and Hamilton Ave. Pipeline cut and capped S of Del Amo Blvd.
M-109		Mobil Torrance Refinery	
	East	30ft Mobil Right of Way	
	South	Normandie Ave.	
	East	Del Amo Blvd.	Pipeline cut, capped and removed from New Hampshire Ave. to Vermont Ave. Pipeline cut and capped between Vermont Ave. and Hamilton Ave.
		Terminates at Main St.	



Table 1 - Response to Question 1.a.

Mobil Pipeline Routes Within One Mile Radius of Del Amo Site			
Mobil Pipeline	Direction	Street or Location	Comments
M-44		Mobil Torrance Refinery	
	East	30ft Mobil Right of Way	
	South	Normandie Ave.	
	East	Del Amo Blvd.	
	South	Vermont Ave.	Pipeline cut, capped and removed in several locations S of Del Amo Blvd.
M-131		Mobil Torrance Refinery	
	East	30ft Mobil Right of Way	
	South	Normandie Ave.	
	East	204th St.	
	South	New Hampshire Ave.	
	East	Baron St.	
	South	Vermont Ave.	
G-95		Mobil Torrance Refinery	
	East	30ft Mobil Right of Way	Pipeline cut and capped near Normandie Ave.
	South	Normandie Ave.	Pipeline cut and capped near Del Amo Blvd.
	East	Del Amo Blvd.	Pipeline cut, capped and removed from New Hampshire Ave. to Vermont Ave.
			Pipeline cut and capped between Vermont Ave. and Hamilton Ave.
	South	Main St.	Pipeline cut and capped S of Del Amo Blvd.
M-109		Mobil Torrance Refinery	
	East	30ft Mobil Right of Way	
	South	Normandie Ave.	
	East	Del Amo Blvd.	Pipeline cut, capped and removed from New Hampshire Ave. to Vermont Ave.
			Pipeline cut and capped between Vermont Ave. and Hamilton Ave.
		Terminates at Main St.	

Table 1 - Response to Question 1.a.

Mobil Pipeline Routes Within One Mile Radius of Del Amo Site			
Mobil Pipeline	Direction	Street or Location	Comments
M-43		Mobil Torrance Refinery	
	East	30ft Mobil Right of Way	
	South	Western Ave.	
	East	216th St.	
	South	Normandie Ave.	
	East	Carson St.	
M-42		Mobil Torrance Refinery	
	East	30ft Mobil Right of Way	Pipeline sold to Douglas Oil Co. August 1974
	North	Normandie Ave.	
	East	Francisco St.	
		Terminates @ Main St.	
M-101	East	220th St.	Pipeline cut and capped @ Main St.
	North	Orrick Ave.	Pipeline cut and capped @ 213th St.
M-119		Mobil Torrance Refinery	
	East	30ft Mobil Right of Way	
	South	Western Ave.	Pipeline replaced from Del Amo Blvd to 205th St. - old abandoned inplace Pipeline replaced S of Carson St. - old abandoned inplace
M-49	North	Main St. @ Francisco St.	Pipeline cut and capped in several locations
	East	Victoria St.	Pipeline cut and capped in several locations
M-127	East	208th St.	Pipeline connects to M-44 @ Vermont Ave.
	East	Torrance Blvd.	Pipeline connects to M-54 @ Main St.

Table 1 - Response to Question 1.a.

Mobil Pipeline Routes Within One Mile Radius of Del Amo Site			
Mobil Pipeline	Direction	Street or Location	Comments
M-5	North	Main St. @ Francisco St.	Cut and capped in several places
	South	Main St. @ Francisco St.	Sold to Douglas Oil Company August 1974
M-13	North	Main St. @ Del Amo Blvd.	Pipeline ties into M-109 - several areas replaced with old abandoned inplace
			Pipeline cut and capped near Artesia Blvd.
	South	Main St. @ Del Amo Blvd	Pipeline abandoned inplace to Torrance Blvd.
			Pipeline ties into M-54 @ Torrance Blvd.

Table 2 - Response to Question 1

Mobil Pipelines on either Del Amo Blvd. or 204th St.									
Response to EPA Question No.	1.a.	1.b.	1.c.	1.d.		1.f.			
Mobil Pipeline	Alignment Sheets	Diameter (in)	Approx. Year Installed	Transported Material	Status	Last Pressure Test Results			
						Date	Test (psi)	Working (psi)	Duration (hrs)
2 - 8" Amine	4-X-11	8	1950	Diethanol Amine	Abandoned since early 1970's				
	4-X-12								
	4-X-13								
M-136	4-G-92	4	1945	Natural Gasoline	Sold to Dow Chemical 1 June 1973				
	4-G-93								
	4-G-94								
M-109	4-A-1328	8	1945	Refined Product	Abandoned in 1971				
	4-A-1329								
	4-A-1330								
M-131	4-A-1819	10.75 x 0.25	1956	Crude	Active	April 1987	1000	784	4
	4-A-1820								
M-44	4-A-408	8 x 0.25	1929	Crude	Portions abandoned in early 1970's	April 1987	1000	784	4
G-95	4-A-1306	2	1941	Natural Gasoline	Abandoned over 25 years				
	4-A-1307								
	4-A-1308								
M-145	4-A-2055	12.75 x 0.25	1973	Gasoline	Active	January 1990	1425	1140	8
	4-A-2056			Diesel					
	4-A-2057								
M-146	4-A-2274	24 x 0.312	1979	Crude	Active	July 1986	490	392	4
	4-A-2275								
	4-A-2276								

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## TABLE 3

## LEAK HISTORY

## LINE M-13

REPORT #	DESCRIPTION
WGA-106 9/23/83	57' S/O TORRANCE BLVD. ON MAIN. CRUDE 1 BBLS LOST. STATION 748+49. DRAWING 4-A-224B.
WGA-95 4/12/78	36' S/O 208TH, 26' E/O MAIN. TRACE LOST. STATION 783+16.
WGA-246 10/15/38	584' N/O 213TH ST ON MAIN ST. 5 BBLS LOST.
WGA-411 10/15/43	635' N/O 213TH ST ON MAIN ST. 6 BBLS LOST.
WGA-415 12/1/43	348' N/O GRIFFITH ST. ON MAIN ST. 15 BBLS LOST.
WGA-516 5/10/46	117' S/O GRIFFITH ST. ON MAIN ST. 50 BBLS LOST. STATION 677+14.
WGA-529 9/16/46	275' S/O BROADWAY ON E/S MAIN ST OVER CULVERT. 4 BBLS LOST.
WGA-530 9/26/46	1200' S/O ARTESIA ON E/S OF MAIN ST. 5 BBLS LOST. STATION 641+50.
ML-5939 1/18/52	207' S/O BROADWAY ON E/S MAIN ST. 15 BBLS LOST. STATION 695+94.
ML-6231 8/6/55	983' S/O FRANCISCO ST, 15' E/O MAIN. 15 BBLS LOST. STATION 726+58.
ML-6349 12/7/56	71' S/O 213TH, 17' E/O MAIN ST. 5 BBLS LOST. STATION 770+78.
ML-6492 1/22/58	85' N/O 213TH ST., 17' E/O MAIN ST. 10 BBLS LOST. STATION 769+23.
ML-6749 4/7/60	40' S/O DEL AMO, 22' E/O MAIN ST. 1 BBLS LOST. STATION 730+22.
TLB-183 9/12/64	28' N/O CLARION DR., 15' E/O MAIN ST. 6 BBLS LOST. STATION 766+91.
TLW-73 7/28/65	1193' & 1342' N/O VICTORIA, 15' E/O MAIN ST. 15 BBLS LOST. STATION 645+16 & 643+67.

REPORT #	DESCRIPTION
TLB-257 3/9/66	45' N/O TORRANCE BLVD., 23' E/O MAIN ST. 5 BBLs LOST. STATION 744+83.
TLB-307 2/6/67	27' E/O MAIN ST., 52' S/O CL 208TH. 1 BBL LOST. STATION 745+84.
TLB-350 12/21/67	37' E/O MAIN ST., 49' N/O TORRANCE BLVD. 1 BBL LOST. STATION 744+78.
TLW-133 7/18/68	340' N/O FRANCISCO, 16' E/O MAIN ST. DIESEL OIL 3 BBLs LOST. STATION 713+89.
455-83-021 9/26/83	WILMINGTON GATHERING. CRUDE 2 BBLs LOST, 1 BBL RECOVERED. STATION 748+46 - 748+56.

LINE M-43

REPORT #	DESCRIPTION
M43-153 12/20/33	175' N/O PE TRACKS AT EL PARDO & WESTERN AVE. 100 BBLs LOST.
M43-174 11/14/35	BACK OF COLUMBIA STEEL ON 208 TH ST. BETWEEN WESTERN & ARLINGTON. 100 BBLs LOST.
M43-178 3/22/36	NORMANDIE & CARSON ST. 10 BBLs LOST.
M43-179 4/21/36	WESTERN & CARSON ST. 1 BBL LOST.
M43-196 3/13/37	350' N/O 213TH ST ON WESTERN AVE. 750 BBLs LOST.
M43-212 11/8/37	430' N/O 213TH ST ON WESTERN AVE. 25 BBLs LOST.
M43-226 3/16/38	150' N/O PE TRACKS ON WESTERN AVE. 10 BBLs LOST.
M43-253 11/15/38	1600' W/O WESTERN ON 208TH ST. 100 BBLs LOST.
M43-263 12/19/38	1000' N/O 208TH ST ON ARLINGTON AVE. 2 BBLs LOST.
M43-295 10/3/39	RELOCATED LINE ON COLUMBIA FROM STATION 27+00 - 36+00. 20 BBLs LOST.
M43-422 1/8/44	125' N/O 203RD ST. ON ARLINGTON AVE. 10 BBLs LOST.
M43-432 5/5/44	51' E/O WESTERN AVE. ON CARSON ST. 3 BBLs LOST.
M43-438 8/21/44	341' E/O NORMANDIE AVE ON CARSON ST. 12 BBLs LOST.
M43-447 10/30/44	1017' E/O NORMANDIE ON CARSON. 4 BBLs LOST.
M43-448 10/31/44	902' E/O NORMANDIE AVE. ON CARSON. 2 BBLs LOST.
M43-449 10/28/44	ARLINGTON & 208TH ST. 10 BBLs LOST.

REPORT #	DESCRIPTION
M43-456 12/13/44	120' E/O VERMONT AVE. ON CARSON. 5 BBLS LOST.
M43-466 3/23/45	571' E/O VERMONT ON CARSON. 3 BBLS LOST.
M43-467 3/23/45	380' E/O FIGUEROA ST. ON CARSON. 2 BBLS LOST.
M43-469 3/26/45	882' E/O NORMANDIE ON CARSON. 1 BBL LOST.
M43-483 7/26/45	365' E/O WESTERN AVE. ON CARSON ST. 1 BBL LOST.
M43-489 10/22/45	39+42 AT CULVERT INSIDE COLUMBIA STEEL UNION. 6 BBLS LOST.
M43-500 11/28/45	62' E/O VERMONT ON CARSON, 630' E/O VERMONT ON CARSON, 780' W/O BERENDO ON CARSON, 700' W/O BERENDO ON CARSON. 10 BBLS LOST.
M43-502 1/4/46	443' E/O FIGUEROA ST. ON CARSON ST. 3 BBLS LOST.
M43-533 10/26/46	40' W/O EXPANSION JOINT COLUMBIA STEEL YARD. 30 BBLS LOST.
M43-540 12/9/46	52' E/O ARLINGTON N/S 208TH ST. 10 BBLS LOST.
M43-551 4/9/47	198' E/O VERMONT ON CARSON. 20 BBLS LOST.
M43-579 2/12/48	98' S/O OF RR TRACKS AT WESTERN AVE. 9 BBLS LOST.
M43-585 6/4/48	69' E/O ARLINGTON ON 208TH ST. 15 BBLS LOST. STATION 20+75.
M43-588 8/2/48	40' E/O ARLINGTON ST. ON 208TH ST. 10 BBLS LOST. STATION 20+47.
M43-5858 7/9/52	157' N/O 214TH ST & 42' W/O WESTERN. 15 BBLS LOST. STATION 75+15.
M43-5892 8/29/52	323' N/O 213TH ST ON WESTERN AVE. 15 BBLS LOST. STATION 69+87.
M43-5942 1/22/53	955' W/O WESTERN IN COLUMBIA STEEL YARD. 10 BBLS LOST. STATION 39+30.



REPORT #	DESCRIPTION
M43-6006 9/19/53	512' N/O 213TH ST ON WESTERN. 50 BBLS LOST.
ML-6207 5/10/55	36' E/O ARLINGTON, 26'4" N/O 208TH ST. 15 BBLS LOST. STATION 50+43.
ML-6296 3/5/56	693' W/O VERMONT, 18' N/O CARSON. 2 BBLS LOST. STATION 139+33.
ML-6325 5/2/26	405' S/O TORRANCE BLVD, 35' W/O WESTERN. 50 BBLS LOST. STATION 68+00.
ML-6327 7/9/56	150' N/O CARSON, 32' W/O WESTERN. 10 BBLS LOST. STATION 86+28.
ML-6371 12/10/56	43' E/O ARLINGTON IN COLUMBIA STEEL YARD. 15 BBLS LOST. STATION 20+47.
ML-6376 12/26/56	176' S/O 213TH ST., 43' W/O WESTERN AVE. 1 BBL LOST. STATION 44+88.
ML-6386 1/18/57	54' E/O ARLINGTON IN COLUMBIA STEEL YARD. 3 BBLS LOST. STATION 20+54.
ML-6497 8/13/57	109' S/O 214TH ST, 24' W/O WESTERN. 15 BBLS LOST. STATION 78+13.
ML-6478 12/4/57	62' W/O FIGUEROA, 16' N/O CARSON. 5 BBLS LOST.
ML-6593 12/31/58	54' S/O 216TH ST, 8'6" W/O P.L. 3 BBLS LOST. STATION 83+97.
ML-6597 1/7/59	165' & 160' S/O 213TH ST, 42'8" W/O WESTERN. 2 BBLS LOST. STATION 74+73 & 74+78.
ML-6598 1/7/59	386' W/O FIGUEROA, 19' N/O CARSON. 3 BBLS LOST. STATION 153+72.
ML-6599 1/7/59	170' W/O FIGUEROA, 19' N/O CARSON. 1 BBL LOST. STATION 158+88.
ML-6600 1/12/59	722' N/O 208TH ST, 24'6" W/O ARLINGTON. 10 BBLS LOST. STATION 12+78.
ML-6677 9/3/59	14' E/O ARLINGTON, 37' S/O 208TH ST. 3 BBLS LOST. STATION 20+22.
ML-6678 9/9/59	35' W/O WESTERN, 157' S/O 209TH ST. 5 BBLS LOST. STATION 51+81.

REPORT #	DESCRIPTION
ML-6679 9/3/59	18' N/O CARSON, 26' E/O FIGUEROA. 1 BBL LOST. STATION 157+84.
ML-6680 9/17/59	174' S/O 213TH ST., 8' E/OW RL. WESTERN. 1 BBL LOST. STATION 75+01.
ML-6758 5/4/60	94' S/O 216TH ST, W/S WESTERN. 3 BBLS LOST. STATION 84+49.
ML-6785 10/24/60	96' S/O 216TH ST., 8.5' E/O WESTERN AVE. 10 BBLS LOST. STATION 84+53.
ML-6789 11/16/60	119' W/O MONETA, 19' N/O CARSON. 1 BBL LOST. STATION 159+56.
TLB-18 5/11/61	156' S/O 213TH ST., 8' E/O WESTERN. 5 BBLS LOST. STATION 74+83.
TLB-29 8/7/61	104' S/O 215TH ST, W/S WESTERN. 1 BBL LOST. STATION 81+54.
TLB-39 11/15/61	111' N/O CARSON, 43' W/O WESTERN. 2 BBLS LOST. STATION 86+62.
TLB-40 11/14/61	155' N/O CARSON, 43' W/O WESTERN. 3 BBLS LOST. STATION 86+49.
TLB-47 12/17/61	43' W/O WESTERN, 119' N/O 213TH ST. 5 BBLS LOST. STATION 72+08.
TLB-64 2/12/62	43' W/O WESTERN, 54' S/O 216TH ST. 2 BBLS LOST. STATION 84+64.
TLB-88 7/18/62	43' W/O WESTERN, 55' S/O 216TH ST. 1 BBL LOST. STATION 84+65.
TLB-107 1/31/63	125' W/O MONETA, 16' N/O CARSON. 15 BBLS LOST. STATION 169+50.
TLB-173 5/3/64	36' W/O MONETA, 18' N/O CARSON. 5 BBLS LOST. STATION 171+20.
TLB-196 12/4/64	182' S/O 209TH ST., 35' E/O WESTERN. 5 BBLS LOST. STATION 53+11.
TLB-201 1/11/65	990' N/O DOMINGUEZ, 24' W/O VAN NESS. 8 BBLS LOST. STATION 10+17.
TLB-209 3/30/65	19' W/O VAN NESS, 739' N/O DOMINGUEZ. 1 BBL LOST. STATION 12+62.

REPORT #	DESCRIPTION
TLB-210 3/30/65	36' E/O WESTERN, 170' S/O 209TH ST. 1 BBL LOST. STATION 54+70.
TLB-214 4/14/65	13' N/O CARSON, 55' E/O FIGUEROA. 5 BBL LOST. STATION 158+12.
TLB-223 12/6/65	400' W/O WESTERN IN COLUMBIA STEEL YARD. 200 BBL LOST. STATION 44+62.
TLB-245 1/18/66	180' E/O FIGUEROA, 17' N/O CARSON. 1 BBL LOST. STATION 159+38.
TLB-266 6/15/66	100' S/O 209TH ST., 35' E/O WESTERN. 26 BBL LOST. STATION 52+28.
TLB-277 9/21/66	33' E/O WESTERN, 96' S/O 209TH. 1 BBL LOST. STATION 52+00.
TLB-281 10/26/66	156' W/O FIGUEROA, 18' N/O CARSON. 10 BBL LOST. STATION 159+13.
TLB-286 11/17/66	146' S/O 209TH ST., 34'10" E/O WESTERN. 2 BBL LOST. STATION 54+85.
TLB-294 1/3/67	88' W/O MONETA, 18' N/O CARSON. 4 BBL LOST. STATION 169+93.
TLB-721 6-12-84	WESTERN S/O TORRANCE BLVD. 10 BBL LOST. STATION 65+00. DRAWING 4-A-1981.

# LINE M-47

REPORT #	DESCRIPTION
M47-202 5/29/37	.5 MILES S/O 208TH ST ON NORMANDIE. 10 BBLS LOST.
M47-204 6/2/37	1000' N/O CARSON ON NORMANDIE. 6 BBLS LOST.
M47-216 12/20/37	25' S/O 211TH ST ON NORMANDIE. 5 BBLS LOST.
M47-217 12/28/37	25' S/O 211TH ST ON NORMANDIE. 8 BBLS LOST.
M47-218 1/3/38	1000' S/O OF 208TH ST ON NORMANDIE. 3 BBLS LOST.
M47-238 8/18/38	140' W/O NORMANDIE ON N. SIDE OF 208TH ST. NONE LOST.
M47-258 11/23/38	1750' & 1770' N/O CARSON ON NORMANDIE. 5 BBLS LOST.
M47-388 11/30/42	175' E/O ARLINGTON AVE ON 208TH ST. 3 BBLS LOST.
M47-434 6/3/44	617' W/O NORMANDIE AVE. ON 208TH ST. 12 BBLS LOST.
M47-453 11/7/44	870' N/O CARSON ST ON NORMANDIE AVE. 2 BBLS LOST.
M47-476 6/8/45	2' N/O 203RD ST. ON ARLINGTON. 6 BBLS LOST.
M47-527 8/7/46	6' N/O 203RD ST ON ARLINGTON. 4 BBLS LOST.
M47-620 1/12/50	1040' N/O CARSON ON NORMANDIE. 300 BBLS LOST. STATION 107+58.
M47-5966 4/17/53	1137' N/O CARSON ON NORMANDIE. 10 BBLS LOST. STATION 106+65.
M47-6046 1/15/54	194' E/O POLE 321397E COLUMBIA STEEL YARD. 2 BBLS LOST. STATION 29+37.
ML-6174 2/4/55	48' W/O DENKER, 20' N/O 208TH ST. 75 BBLS LOST.

REPORT #	DESCRIPTION
ML-6254 11/18/55	770' N/O 208TH & 24' E/O ASHINTON. 50 BBLS LOST. STATION 12+41.
ML-6362 11/12/56	59'6" S/O DEL AMO, 25' E/O ARLINGTON. 100 BBLS LOST. STATION 2+39.
ML-6363 11/12/56	859' S/O DEL AMO, 25' E/O ARLINGTON. 50 BBLS LOST. STATION 10+39.
ML-6370 12/9/56	91' N/O CARSON, 26' E/O NORMANDIE. 5 BBLS LOST. STATION 118+84.
ML-6490 1/20/58	115' W/O STATION 39+14. 60 BBLS LOST.
ML-6491 1/21/58	CLOUMBIA SLAG PILE, 123' W/O STATION 39+14. 2 BBLS LOST. STATION 37+91.
ML-6570 10/17/58	113' S/O 208TH ST, 70' E/O PERR ON E/S NORMANDIE. CUTTER STOCK 5 BBLS LOST. STATION 81+55.
ML-6574 10/31/58	135' E/O & 18' E/O NORMANDIE. 5 BBLS LOST. STATION 78+39.
ML-6681 9/16/59	765' N/O CARSON, 68' E/O RR ON NORMANDIE. 20 BBLS LOST. STATION 110+28.
ML-6696 10/1/59	376' N/O 220TH, 69' E/O RR. 3 BBLS LOST. STATION 126+73.
ML-6697 10/6/59	376' N/O 220TH, 69' E/O RR. 5 BBLS LOST. STATION 126+73.
TLB-83 5/13/62	325' N/O 212TH ST, 18' E/O NORMANDIE. FUEL 15 BBLS LOST. STATION 96+57.
TLB-90 8/27/62	32' E/O ARLINGTON, 30' N/O COLUMBIA STEEL. 5 BBLS LOST. STATION 19+92.
TLB-92 9/9/62	18' N/O CARSON, 18' E/O NORMANDIE. FUEL OIL 4 BBLS LOST. STATION 117+75.
TLB-135 5/2/63	36'6" E/O WESTERN, 24'6" S/O 208TH. 3 BBLS LOST. STATION 49+20.
TLB-191 11/1/64	597' E/O ARLINGTON, 10' N/O POWERLINE. 15 BBLS LOST. STATION 25+56.
TLB-206 2/18/65	136' E/O HARVARD, 26' N/O 208TH ST. 5 BBLS LOST. STATION 58+66.

REPORT #	DESCRIPTION
TLB-219 6/20/65	27' N/O 208TH ST, 57' W/O DENKER. 5 BBLS LOST. STATION 64+70.
TLB-274 8/15/66	418' E/O WESTERN, 26' N/O 208TH ST. NONE LOST. STATION 23+67.
TLB-310 2/26/67	ARLINGTON AVE., 14' S/O 8+37. 12 BBLS LOST. STATION 8+51. DRAWING 4-A-425.
TLB-328 7/12/67	31 E/O VAN NESS, 81' OF STATION 8+37. 1 BBL LOST. STATION 9+18.
TLB-339 10/8/67	470' W/O DENKER, 26' N/O 208TH. 10 BBLS LOST. STATION 61+27.
TLB-346 11/25/67	34' E/O ARLINGTON, 66' S/O ANGLE POINT 8+37. 2 BBLS LOST. STATION 9+3.
TLB-399 7/22/68	905' S/O DEL AMO, 27' E/O ARLINGTON. 3 BBLS LOST. STATION 7+77.
TLB-408 9/5/68	788' S/O DEL AMO, 33' E/O ARLINGTON. CUTTER STOCK 2 BBLS LOST. STATION 9+68.
TLB-409 9/5/68	790' S/O DEL AMO, 33' E/O ARLINGTON. CUTTER STOCK 2 BBLS LOST. STATION 9+70.
TLB-479 4/18/69	595' S/O DEL AMO & 24' E/O VAN NESS. FUEL 5 BBLS LOST. STATION 7+75.
TLB-491 10/2/69	192' W/O STATION 32+64. 3 BBLS LOST. STATION 30 +72.
TLB-492 10/3/69	36' W/O HARVARD, 32' N/O 208TH ST. 1 BBL LOST. STATION 57+57.
TLB-496 11/6/69	STATION 0+45.31 - INS. FLG. 3 BBLS LOST. STATION 0+20. DRAWING 4-A-425.
TLB-500 11/26/69	72' W/O SP RR W/O NORMANDIE. CUTTERSTOCK 20 BBLS. STATION 81+38.16
TLB-501 11/28/69	89' W/O BRIGHTEN AVE., 30' N/O TORRANCE BLVD. 2 BBLS LOST. STATION 75+17.
TLB-529 12/17/70	75' E/O HALLDALE, 24' N/O TORRANCE BLVD. 4 BBLS LOST. STATION 73+52
TLB-542 4/12/71	385' N/O DOMINGUEZ, 8' W/O E SIDE VAN NESS. 5 BBLS LOST. STATION 20+00.

# LINE M-54

REPORT #	DESCRIPTION
M54-342 12/8/40	12' E/O DENKER ON 208TH ST., GASOLINE, 5 BBLS LOST.
M54-193 2/12/42	391' S/O 213TH ST. ON AVALON BLVD, GASOLINE, 4 BBLS LOST.
M54-199 6/12/42	26' N/O 213TH ST. ON BOLSA ST., GASOLINE, 8 BBLS LOST.
M54-230 10/13/43	495' N/O 213TH ST. ON BOLSA ST., GASOLINE, 50 BBLS LOST.
M54-233 11/9/43	29' E/O MAIN ST. ON TORRANCE BLVD, GASOLINE, 50 BBLS LOST.
M54-435 4/27/44	1157' W/O WESTERN AV TO TORRANCE RFNY TANK FARM, GASOLINE, 4 BBLS LOST.
M54-535 11/15/46	556' S/O 213TH ST. ON AVALON BLVD, GASOLINE, 20 BBLS LOST.
M54-553 1947	15' E/O DENKER ON TORRANCE BLVD, GASOLINE, 2 BBLS LOST.
M54-589 8/8/48	345' W/O AVALON BLVD ON 213TH ST., GASOLINE, 3 BBLS LOST.
M54-664 9/26/51	37' W/O ELLIOT ST. ON TORRANCE BLVD STA 98+28, GASOLINE, 30 BBLS LOST.
ML-5904 9/13/52	475' S/O TORRANCE BLVD ON JAMISON STA 161+15, GASOLINE, 5 BBLS LOST.
ML-6075 3/17/54	27' N/O TORRANCE BLVD & 20' E/O ELLIOTT ST., 2 BBLS LOST.
ML-6123 9/16/54	177' W/O GRACE ST. & 13' S/O 213TH ST., GASOLINE, 250 BBLS LOST.
ML-6185 3/5/55	24' N/O 208TH ST. & 50' W/O RAYMOND, 25 VIS. FUEL, 20 BBLS LOST.
ML-6433 6/11/57	175' W/O VERMONT & 27' N/O 208TH ST., HEAVY FUEL, 5 BBLS LOST.
ML-6609 1/29/59	183' W/O VERMONT & 28' N/O 208TH ST., FLUSH STOCK, 20 BBLS LOST.

REPORT#	DESCRIPTION
ML-6727 2/18/60	350' W/O AVALON BLVD & 13' S/O 213TH ST., GASOLINE, 10 BBLs LOST.
TLW-5 9/27/61	342' S/O 208TH ST. & 26' E/O JAMISON, GASOLINE, 50 BBLs LOST.
TLB-136 4/18/63	37' E/O MAIN ST. & 25' N/O 208TH ST., 150 BBLs LOST.
TLB-166 3/26/64	244' W/O CONRADI AV & 29' N/O TORRANCE BLVD, 3 BBLs LOST.
TLW-99 11/15/66	402' S/O TORRANCE BLVD & 27' E/O JAMISON, 5 BBLs LOST.



LINE M-119

REPORT #	DESCRIPTION
ML-5857 7/8/52	5' N/O 219TH ST. & 43' W/O WESTERN AV, GASOLINE, 15 BBLS LOST.
ML-6098 2/28/54	28' S/O P.E.R.R. & S/E OF TORRANCE T.F., GASOLINE, 200 BBLS LOST.
ML-6326 7/5/56	30' N/O 213TH ST. & 42' W/O WESTERN AV, GASOLINE, 10 BBLS LOST.
ML-6582 11/17/58	34' S/O 213TH ST. & 42' W/O WESTERN AV, GASOLINE, 5 BBLS LOST.
TLW-8 11/20/61	394' N/O 213TH ST. & 39' W/O WESTERN AV, PRODUCTS, 275 BBLS LOST.
TLW-180 3/29/84	WESTERN AV S/O TORRANCE BLVD STA 61+10, DIESEL, 5 BBLS LOST.
TLW-179 3/28/84	STA 63+93, DIESEL, 2 BBLS LOST, 2 BBLS RECOVERED.
TLW-180 3/29/84	STA 60+55, DIESEL, 35 BBLS LOST, 30 BBLS RECOVERED.

Report Date 4-1-87

M-131

## Volume From Bkr Test Reports:

OPEN END #87 228" Main to Torrance - 89,901 gal  
 HYDROSTATIC TEST #86 228" Main to Shell - 49,325 gal  
 (WATER) #85 THUMS to Shell - 87,116 gal  
 Bled out M42 volume, no longer active - 226,342 gal

Line No. THUMS System Station + To +Test Section Description THUMS Facility to Torrance MetersPipe Diameter 8" 10" inch Nominal Wall Thickness Varies inchPipe Grade X52 ☐ B ☐ Section Length See enclosed sketches feetVolume at 60° F. Gal/Ft Total Volume Vo 226,342 gal  
 Std. Mill Test Press psig Pressure to Yield psig = 5389 barrelsNet Volume + Added (-Bled) to Test Section Vm -4.3 galInitial and Final Pressure 1000 psigMinimum Pressure (Test Pressure) During Test Period psig

	1 INITIAL	2 FINAL
Date of Test	<u>4-1-87</u>	<u>4-1-87</u>
Time of Test	<u>8:35</u>	<u>12:35</u>
Temperature (°F.) T	<u>78.55</u>	<u>78.55</u>

Fpwt (Thermal Expansion Factor from Table) 0.998153737 0.998153737 $\Delta = Fpwt2 - Fpwt1$ Calc. Volume Change =  $\Delta \times Vo =$  0 galUnaccountable Deviation =  $(Vc - Vm) \times 100/Vo$  -4.3 gal 0.0019 %

A positive deviation represents fluid gain and is due to measurement error.

~~A negative deviation represents fluid loss and is acceptable for values within 0.05%.~~

WITHDRAWALS

8:00 PM 2.8 gal  
 12:30 AM 1.5 gal  
4.3 gal

RSine  
 Calculated By

Report Date 9/10/91

WCPL Test No 170-18 OPEN END  
SF M No 91-189 HYDROSTATIC TEST  
(WATER)

Line No. M-146 Station 563+51 to 269+52  
Test Section Description M-146 Tolerance Meter to Cement Block  
Pipe Diameter 24 inch Nominal Wall Thickness .312 inch  
Pipe Grade X-52 Section Length 31,846 feet  
Volume at 60° F. — gal/ft Total Volume  $V_o =$  209,994 gal.  
Std. Mill Test Press. — psig Pressure at Yield = 1352 psig  
Net Volume + Added (-Bled) to Test Section  $V_m =$  -148 gal.  
Initial and Final Pressure 520 psig  
Minimum Pressure (Test Pressure) During Test Period 520 psig

	<sup>1</sup> INITIAL	<sup>2</sup> FINAL
Date of Test	<u>9/10/91</u>	<u>9/10/91</u>
Time of Test	<u>7:00 p.m.</u>	<u>11:00 p.m.</u>
Temperature (°F.) T	<u>94.2</u>	<u>94.25</u>
Fpwt (Thermal Expansion Factor from table)	<u>995817743</u>	<u>9958084075</u>
$\Delta = Fpwt2 - Fpwt1$	<u>-0.0000093355</u>	
Calc. Volume Change = $\Delta \times V_o =$	$V_c =$ <u>-6.6</u> gal.	
Unaccountable Deviation = $(V_c - V_m) \times 100/V_o$	<u>.008</u> %	

A positive deviation represents fluid gain and is due to measurement error.

~~A negative deviation represents fluid loss and is acceptable for values within 0.5%.~~

E. Q. CHAVEZ  
Calculated By

Pressure Test No 180-1

RESPONSE TO Q# 1. f.  
Report Date 1/23/90

OPEN END  
HYDROSTATIC TEST  
(WATER)

Line No. M-145 Station 959+99.29 to 0+00.00  
Test Section Description Vernon Meters to Torrance Meters  
Pipe Diameter 12 3/4 inch Nominal Wall Thickness .250 inch  
Pipe Grade X-52 Section Length 96,000.1 feet  
Volume at 60° F. 6.122535 gal/ft Total Volume  $V_o =$  587,764.0 gal.  
Std. Mill Test Press. N/A psig Pressure at Yield = 2039 psig  
Net Volume + Added (-Bled) to Test Section  $V_m =$  -7.6 gal.  
-5.25 - 2.25 - 0.1 = -7.6  
Initial and Final Pressure 1341 psig  
Minimum Pressure (Test Pressure) During Test Period 1338 psig

	1 INITIAL	2 FINAL
Date of Test	<u>1/23/90</u>	<u>1/23/90</u>
Time of Test	<u>10:25 a.m.</u>	<u>2:40 p.m.</u>
Temperature (°F.) T	<u>66.6</u>	<u>66.5</u>
Fpwt (Thermal Expansion Factor from table)	<u>0.99948151</u>	<u>0.99948952</u>

$\Delta = Fpwt_2 - Fpwt_1$  0.00000801

Calc. Volume Change =  $\Delta \times V_o =$   $V_c$  +4.71 gal.

Unaccountable Deviation =  $(V_c - V_m) \times 100/V_o$  +0.02 %  
4.71 - (-7.6) = +12.31

A positive deviation represents fluid gain and is due to measurement error.

~~A negative deviation represents fluid loss and is acceptable for values within 0.05%~~

J.E. Elliott  
Calculated By

CSPA Allowable deviation = -10.00 gal./hr.

Report Date 4-1-87

M-131

## Volume From 8 hr Test Reports:

OPEN END # B7 228" Main to Torrance - 89,901 gal  
 HYDROSTATIC TEST # B6 228" Main to Shell - 49,325 gal  
 (WATER) # B5 THUMS to Shell - 87,116 gal  
 Backed out M-42 volume, no longer active - 226,342 gal

Line No. THUMS System Station + To +Test Section Description THUMS Facility to Torrance MetersPipe Diameter 8" 10" inch Nominal Wall Thickness Varies inchPipe Grade X52 ☐ B ☐ Section Length See enclosed sketches feetVolume at 60° F.                      Gal/Ft Total Volume Vo 226,342 galStd. Mill Test Press                      psig Pressure to Yield                      psig = 5389 barrelsNet Volume + Added (-Bled) to Test Section Vm - 4.3 galInitial and Final Pressure 1000 psigMinimum Pressure (Test Pressure) During Test Period                      psig

	1 INITIAL	2 FINAL
Date of Test	<u>4-1-87</u>	<u>4-1-87</u>
Time of Test	<u>8:35</u>	<u>12:35</u>
Temperature (°F.) T	<u>78.55</u>	<u>78.55</u>
Fpwt (Thermal Expansion Factor from Table)	<u>0.998153737</u>	<u>0.998153737</u>

 $\Delta = Fpwt2 - Fpwt1$ Calc. Volume Change =  $\Delta \times Vo =$ Vc 0 galUnaccountable Deviation =  $(Vc - Vm) \times 100/Vo$ -4.3 gal0.0019 %

A positive deviation represents fluid gain and is due to measurement error.

~~A negative deviation represents fluid loss and is acceptable for values within 0.05%~~

WITHDRAWALS

8:00 PM 2.8 gal

12:30 PM 1.5 gal

4.3 gal

RSine  
 Calculated By

Report Date 9/10/91

WCPL Test No 170-18 OPEN END  
SF M No 91-189 HYDROSTATIC TEST  
(WATER)

Line No. M-146 Station 563+51 to 269+52  
Test Section Description M-146 Torrance Meter to Lenite Block v  
Pipe Diameter 24 inch Nominal Wall Thickness .312 inch  
Pipe Grade X-52 Section Length 31,846 feet  
Volume at 60° F. — gal/ft Total Volume  $V_o =$  709,994 gal.  
Std. Mill Test Press. — psig Pressure at Yield = 1352 psig  
Net Volume + Added (-Bled) to Test Section  $V_m =$  -648 gal.  
Initial and Final Pressure 520 psig  
Minimum Pressure (Test Pressure) During Test Period 520 psig

	1 INITIAL	2 FINAL
Date of Test	<u>9/10/91</u>	<u>9/10/91</u>
Time of Test	<u>7:00 p.m.</u>	<u>11:00 p.m.</u>
Temperature (°F.) T	<u>94.2</u>	<u>94.25</u>

Fpwt (Thermal Expansion Factor from table) 995817743 9958084075

$\Delta = Fpwt2 - Fpwt1$  -0.0000093355

Calc. Volume Change =  $\Delta \times V_o =$   $V_c$  -6.6 gal.

Unaccountable Deviation =  $(V_c - V_m) \times 100/V_o$  .008 %

A positive deviation represents fluid gain and is due to measurement error.

~~A negative deviation represents fluid loss and is acceptable for values within 0.05%~~

E. Q. CHAVEZ  
Calculated By

Pressure Test No 180-1

RESPONSE TO Q# 1. f.  
Report Date 1/23/90

OPEN END  
HYDROSTATIC TEST  
(WATER)

Line No. M-145 Station 959+99.29 to 0+00.00  
Test Section Description Vernon Meters to Torrance Meters  
Pipe Diameter 12 3/4 inch Nominal Wall Thickness .250 inch  
Pipe Grade X-52 Section Length 96,000.1 feet  
Volume at 60° F. 6,122,535 gal./ft Total Volume  $V_o =$  587,764.0 gal.  
Std. Mill Test Press. N/A psig Pressure at Yield = 2039 psig  
Net Volume + Added (-Bled) to Test Section  $V_m =$  -7.6 gal.  
-5,25-225-01 = -26  
Initial and Final Pressure 1341 psig  
Minimum Pressure (Test Pressure) During Test Period 1338 psig

	1 INITIAL	2 FINAL
Date of Test	<u>1/23/90</u>	<u>1/23/90</u>
Time of Test	<u>10:25 a.m.</u>	<u>2:40 p.m.</u>
Temperature (°F.) T	<u>66.6</u>	<u>66.5</u>
Fpwt (Thermal Expansion Factor from table)	<u>0.99948151</u>	<u>0.99948952</u>

$\Delta = Fpwt2 - Fpwt1$  0.00000801

Calc. Volume Change =  $\Delta \times V_o =$   $V_c$  +4.71 gal.

Unaccountable Deviation =  $(V_c - V_m) \times 100/V_o$  +0.02 %  
4.71 - (-26) = +30.71

A positive deviation represents fluid gain and is due to measurement error.

~~A negative deviation represents fluid loss and is acceptable for values within 0.05%~~

J.E. Elliott  
Calculated By

CSPA Allowable deviation = -10.00 gal./hr.

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